SUMMARY.

The determination of carbonyl compounds by means of 2,4-dinitrophenylhydrazine and other substituted phenylhydrazines was studied and a comparison was made with the estimation by other reagents such as hydroxylamine hydrochloride, semicarbazide hydrochloride, sodiumsulphite and sodiumbisulphite.

2,4-Dinitrophenylhydrazine was found to be an excellent reagent on carvone, cuminic aldehyde, dihydrocarvone, fenchone, menthone and methyl nonyl ketone. For the ketones here mentioned no satisfactory gravimetric method was yet known.

2-Nitro-5-bromo-phenylhydrazine is applicable for the identification of many carbonyl compounds, *f.i.* benzaldehyde, camphor, carvone, cinnamic aldehyde, citral, citronellal, cuminic aldehyde, dihydrocarvone and methyl nonyl ketone. It is not suitable to gravimetric analyses.

2-Nitro-5-chloro-phenylhydrazine may be employed as a qualitative reagent too, but gives only with cinnamic aldehyde a quantitative precipitate.

2,4,6-Trinitrophenylhydrazine gave of all substituted phenylhydrazines that were examined the least satisfactory results.

The hydroxylamine titration proved itself a useful method for the determination of aldehydes. From the ketones only methyl nonyl ketone could be determined with sufficient accuracy.

Semicarbazide hydrochloride also proved a less suitable reagent on ketones, but gave exact figures with benzaldehyde and cinnamic aldehyde.

For the essential oils under examination the following methods were found to be most satisfying:

Oil of Bitter Almonds: dinitrophenylhydrazine;

Oil of Camphor: no satisfactory method was found;

Oil of Caraway: dinitrophenylhydrazine, sodium sulphite;

Oil of Cassia: sodium bisulphite, dinitrophenylhydrazine;

Oil of Citronella: hydroxylamine titration;

Cumin Oil: dinitrophenylhydrazine, hydroxylamine titration;

Dill Oil: dinitrophenylhydrazine;

Fennel Oil: dinitrophenylhydrazine;

Lemon Oil: hydroxylamine titration;

Lemongrass Oil: hydroxylamine titration, semicarbazide;

Pennyroyal Oil: sodium sulphite;

Oil of Peppermint: dinitrophenylhydrazine, hydroxylamine titration;

Oil of Rue: dinitrophenylhydrazine, hydroxylamine titration;

Oil of Spearmint: dinitrophenylhydrazine, sodium sulphite.